Central University of Kashmir Law Review
Vol. 3 (2023)
eISSN: 2583-6935
pp. 202-212

Telemedicine Practice in India: A Review

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Abstract

Telemedicine aims to increase access to effective, efficient, and high-quality healthcare. Patients and doctors in different locations engage in real-time interactive communication. It might completely change how India provides healthcare. There are several advantages to telemedicine in India, especially when it comes to tackling healthcare issues. Furthermore, it eliminates gaps in health care that are caused by social class, location, and ethnicity. Further, long wait times, rigid scheduling, transportation issues, and frequent follow-ups are all decreased. Doctors can monitor patients remotely, which improves healthcare delivery system and lower the costs. Collaboration between healthcare professionals is facilitated by telemedicine, which allows them to exchange information, get second opinions, and consult specialists without being physically constrained. Palliative care, early disease detection, preventative measures, and rehabilitation are all improved by the efficient use of telemedicine in India's primary healthcare system. The National Telemedicine Portal and the collaboration with the Indian Space Research Organisation are two examples of the activities the Indian government has launched to encourage the adoption of telemedicine, having acknowledged its potential. The vast availability of mobile phones and the Internet in India makes telemedicine a promising way for doctors to improve patient care while reaching a bigger audience, despite obstacles such as infrastructure limits, appropriate legislation, and data security. Therefore, telemedicine in India provides medical professionals with greater patient access, better patient care through improved communication, increased efficiency in the delivery of healthcare, chances for collaboration and knowledge sharing, and the reinforcement of primary healthcare systems. The support of the Indian government emphasizes, even more, how telemedicine has the

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https://doi.org/10.66498/CUKLR.3.2023.202-212

potential to revolutionize the nation's healthcare system while resolving current issues. This paper explores both advantages and challenges of telemedicine and put forth feasible suggestion for the robust system for telemedicine in India.

Keywords: Telemedicine Practice, Information Technology, Healthcare, Telemedicine in India

1. Introduction

Information technology (IT) and electronic communication are used in telemedicine to facilitate the provision of medical care and education to patients who are unable to see a healthcare provider in person. Providing people with access to healthcare and healthcare information can help them achieve better health outcomes. The term 'Telemedicine' coined in the1970s means 'Healing at a distance' literally.[1]

Telemedicine is a fast-evolving service that seeks to increase access to efficient, high-quality healthcare that is also affordable.[2] Physicians and patients at different locations engage in dynamic, two-way contact in real time. The accessibility and quality of digital care have greatly improved because of technological developments.[3] Telemedicine has various benefits,[4] like the following:

a) Cost-effectiveness: Patients save time and money on travel and parking expenses when telemedicine replaces in-person sessions.

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[1] E M Strehle and N Shabde, "One Hundred Years of Telemedicine: Does This New Technology Have a Place in Paediatrics?" *BMJ Journal* 956 (2006).

[2] Asim Kichloo, Michael Albosta, *et.al.*, "Telemedicine, the Current Covid-19 Pandemic and the Future: A Narrative Review and Perspectives Moving Forward in the USA" 8 *Family Medicine and Community Health BMJ Journal* 1 (2020).

[3] Haleem A, Javaid M, *et. al.*, "Telemedicine for Healthcare: Capabilities, Features, Barriers, and Applications" 2 *Sensors International* 2 (2021).

[4] Dac Teoli and Narothama R. Aeddula, "Telemedicine" (2023), available at: https://www.ncbi.nlm.nih.gov/books/NBK535343/ (Visited on June 10, 2023).

b) Increased access to specialized services: By facilitating connections between patients in underserved or distant locations and specialists in urban centers, patient's access to healthcare options is increased.
c) Potential relief from the physician shortage: Telemedicine lets medical professionals contact a larger patient base virtually.

Even with all of its advantages, telemedicine still has drawbacks. These include limited technology resources in some places, issues about the confidentiality of patient data, etc.[5] Nonetheless, through increasing access and boosting effectiveness, technology has the potential to completely transform the way that health care is provided.

There are several categories into which telemedicine services can be divided:[6]

a) Store and forward: Medical records, including pictures or videos, are taken electronically and sent to a medical expert for further evaluation.
b) Real-time: Diagnosis and consultation are made possible by prompt, interactive communication between patients and medical professionals.
c) Self-monitoring or remote monitoring: People can keep an eye on their health from the comfort of their own homes and provide information to medical professionals for review and comment.

Low-income areas have benefited most from telemedicine, which offers convenient access to specialty physicians, close patient monitoring, educational support, health care delivery, illness screening, and disaster management. Although telemedicine cannot address every issue in healthcare, it can lessen the pressure

[5] Shilpa N. Gajarawala and Jessica N. Pelkowski, "Telehealth Benefits and Barriers" 17 *The Journal for Nurse Practitioners* 218-221 (2021).

[6] Vinoth G Chellaiyan, A Y Nirupama, *et.al.*, "Telemedicine in India Where Do We Stand?" 8 *Journal of Family Medicine and Primary Care* 1872-1876 (2019).

on the system.[7]

Improvements to payment policies and regulatory frameworks are required for telemedicine to be completely included in India's healthcare system. With these adjustments, telemedicine will be more widely used and its advantages will be fully realized while its drawbacks are addressed. One can enhance the delivery of health care by increasing access and boosting efficiency by embracing telemedicine and making the required changes.

2. Advantages of Telemedicine in India

In India, telemedicine has various advantages, especially when it comes to tackling issues with the healthcare system. Greater access to medical care for people living in remote places, which provides quick access to expert care and support, is one important advantage. It minimizes medical staff travel time, lowers the expense and difficulty of patient transfers, and simplifies the procedure for both patients and medical professionals.[8]Furthermore, telemedicine is essential for improving the knowledge of practitioners in remote areas using tele-education or tele-continuing medical education. In areas with limited access to doctors, telemedicine enables rural healthcare practitioners to stay updated on medical breakthroughs and enhancing their skills. Telemedicine also makes specialized care easier by making specialists more accessible in far-off places. It supports palliative care, early identification, improved cure rates, prevention, and rehabilitation.[9]

Overall, India's healthcare system benefits from telemedicine in several ways. In addition to lowering expenses and improving long-term health outcomes, it also expands medical professionals' access to care, improves their knowledge in rural areas, and gives them

[7] *Ibid.*

[8] *Ibid* at 3.

[9] Revathi G Maroju, Sonali G Choudhari, *et.al.*, "Role of Telemedicine and Digital Technology in Public Health in India: A Narrative Review" 15 *Cureus* (2023).

flexible work schedules. Telemedicine holds the potential to revolutionize public health in India by facilitating access to healthcare services, removing constraints to primary care, and providing affordable solutions.

In India, telemedicine is being utilized to increase access to medical services and enhance health care by utilizing technology. To simplify access to healthcare services and aggregate public health data, the government has launched several initiatives and partnerships. Given the scarcity of physicians in India, this is especially crucial to give a greater number of people access to healthcare services, telemedicine aids in closing this gap.[10]

The National Cancer Network (ONCONET), the National Rural Telemedicine Network, the National Medical College Network, the Integrated Disease Surveillance Project (IDSP), and the Digital Medical Library Network are just a few government project initiatives. These programs seek to transmit and receive precise data for health care providers' further education as well as for research, treatment, prevention, diagnosis, and assessment.[11] The Health Ministry founded a National Telemedicine Task Force, and the Department of Information Technology has established standardized practice guidelines to guarantee the successful adoption of telemedicine. By doing this, the effective implementation of telemedicine nationwide is guaranteed.[12]

In India, the business and public sectors collaborate closely in the field of telemedicine. Public health management is practiced by prominent organizations including Aravind Eye Care, Amrita Institute of Medical Sciences, Asia Heart Foundation, Apollo Telemedicine Enterprises, and Narayana Hrudayalaya. To assist

[10] Eslavath Rajkumar and Aswathy Gopi, "Applications, Benefts and Challenges of Telehealth in India During Covid-19 Pandemic and Beyond: A Systematic Review" 7 *BMC Health Services Research* 2-15 (2023).

[11] *Id. at 5.*

[12] Indian Medical Council and NITI Aayog, Guideline: *Telemedicine Practice Guidelines Enabling Registered Medical Practitioners to Provide Healthcare Using Telemedicine* (Board of Governors in supersession of the Medical Council of India, 2020).

private sector organizations in expanding their telemedicine networks, the Indian Space Research Organisation (ISRO) offers advice and modern technologies.[13]

3. Telemedicine in India: Professional Standards

In India, telemedicine is currently practiced without regard to any particular professional norms or certificates. However, several competencies—such as technological proficiency, professional knowledge, interpersonal skills, resource management, and health information security—are necessary to administer a successful telemedicine program. Technical requirements include patients access software, clinical telemedicine carts, safe and fast internet connections, and IT specialists for configuration and support.[14]

To regulate telemedicine services in India, the Ministry of Health and Family Welfare developed the National Telemedicine Portal. The development of Electronic Health Record standards has guaranteed quality and interoperability, and the National Health Authority is responsible for overseeing telemedicine activities. To enhance access to healthcare in rural locations, many organizations and institutes have launched telemedicine programs, including the Aravind Eye Care System and the Indian Council of Medical Research.[15] Although telemedicine services are being regulated and made available in India, there is always need for improvement. Professional standards and certifications should be developed to improve the calibre and accessibility of healthcare services. Using the afore-mentioned competencies and making ensuring that technological needs are met can help ensure the successful deployment of telemedicine programs in India, as the country works to improve its doctor-to-population ratio and healthcare accessibility.

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[13] Neema Agarwal, Payal Jain, *et.al.*, "Telemedicine in India: A Tool for Transforming Health Care in the Era of Covid-19 Pandemic" 9 *J Educ Health Promot* 190 (2020).

[14] *Ibid.*

[15] Government of India, Report: *E-Governance & Telemedicine* (Ministry of Health and Family Welfare, 2023).

4. India's Legal Requirements for Using Telemedicine

For telemedicine to operate smoothly and safely in India, several legal and technical standards must be adopted. The following are the essential requirements which must be adhered to:[16]

a) Liability: To shield physicians and patients from potential legal ramifications resulting from incorrectly interpreted telemedicine-provided information, clear rules are required to define the obligations of healthcare professionals.
b) Data privacy and confidentiality regulations set forth by the government must be followed by telemedicine providers. To prevent unauthorized access or breaches, strong security measures must be in place for patient information. Strong information security measures are necessary for telemedicine to safeguard computer systems and patient data.
c) Information security training should be provided to technical support employees to guard against data loss or breaches.
d) Payment Procedure: A simplified payment procedure should be created for medical professionals who deliver telemedicine services. Incentives for experts will be provided, and just recompense for their knowledge will be guaranteed.
e) Technical Requirements: To operate telemedicine programs, a certain set of technical resources is needed, such as a secure internet connection, a clinical telemedicine cart, patient access software, and the ability to contact IT specialists for setup and support.
f) Competencies: Technical expertise, professional knowledge, people skills, resource management, documentation, and healthcare information security are all necessary for managing a successful telemedicine program.
g) Time Management: To guarantee maximum resource utilization without sacrificing high- quality care during telemedicine consultations, effective time management techniques should

[16] Renata Solimini, Francesco Paolo Busardo, *et.al.*, "Ethical and Legal Challenges of Telemedicine in the Era of the Covid-19 Pandemic" 57 *Medicina Kaunas* 1314 (2021).

be put into place.

Although telemedicine has not received much legislative support in India, in March 2020 the government modified its legislation to guide the telemedicine sector. But before it is widely adopted, issues with infrastructure and access must be resolved. Priorities for overcoming these obstacles include expanding optic fiber into remote areas, linking healthcare organizations, and enhancing internet infrastructure. Influencing changes to the legal system requires evaluating current telemedicine projects.[17] In addition to government initiatives, several organizations actively support telemedicine programs in India. These include the Department of Information Technology, Apollo Hospitals, the ISRO, telemedicine networks for emergency triage, and patients with cancer.[18]

To provide precise rules for doctor-patient communication that include consent, privacy, and utilization, comprehensive regulation is required. To encourage the expansion of telemedicine, solid data regarding the benefits of telehealth for primary care should be created and implemented. To improve implementation and boost capacity, integrated information systems including all stakeholders ought to be implemented. India has a chance to overcome obstacles and completely adopt telemedicine throughout the nation's healthcare system because of developments in broadband connectivity and initiatives to make the country a knowledge society.

5. Challenges for Telemedicine in India

Telemedicine in India faces several challenges that hinder its widespread adoption and effectiveness. These challenges include:[19]

a) Insufficient communication between medical professionals and patients: A lack of doctors, hectic schedules, and little free time

[17] *Id.* at 7.

[18] *Id*. at 10.

[19] E M Strehle and N Shabde, "One Hundred Years of Telemedicine: Does This New Technology Have a Place in Paediatrics?" 91 *Arch Dis Child* 956-959 (2006).

are some of the factors that lead to tense doctor-patient relationships. The problem is made worse by differences in healthcare access depending on social class, geography, and ethnicity.

b) Technology and infrastructure resources: The broad use of telemedicine is hampered by rural areas' limited access to stable internet connectivity and energy. Additionally, there is a dearth of skilled medical personnel with telemedicine technology proficiency.

c) The legal framework for telemedicine is still developing, so it is important to have clear norms and guidelines in place. Another concern is the absence of standardized guidelines. Concerns about data security and privacy further impede implementation.

d) Cultural hurdles and patient acceptance: Many Indians may be reluctant to use telemedicine as their main method of receiving healthcare since they still value in- person sessions with physicians. Patient acceptance is hindered by financial constraints, lack of knowledge, and lack of awareness. Institutions including Apollo Hospitals, Ganga Ram Hospital, Amrita Institute of Medical Sciences, and the Ministry of Health and Family Welfare have launched projects through the National Telemedicine Portal to address these issues. However, additional work is required to get over these challenges.[20]

e) Enhance channels of communication: The doctor-patient connection can be strengthened by improving channels of communication between doctors and patients through greater availability, shorter wait times, flexible scheduling, and improved training.

f) Invest in improving rural communities' energy supply and internet connectivity to boost infrastructure and technology resources.

g) Healthcare providers should have access to training programs that will provide them with the telemedicine skills they require.

[20] *Ibid*.

h) Provide precise rules and regulations: A clear legal framework with uniform regulations is necessary for the effective application of telemedicine. It's critical to address privacy and data security issues.
i) Enlighten and increase awareness: Patient education programs can assist in informing patients about the advantages and appropriate application of telemedicine. Education is a key component in lowering cultural barriers and raising patient acceptance.
j) Financial assistance: By providing government support and money, financial difficulties faced by healthcare providers can be mitigated. A more accessible and cost-effective form of telemedicine may be achieved through public-private partnerships and efforts.

Thus, telemedicine has the potential to significantly contribute to closing the quality gap in healthcare in India, increasing underprivileged groups' access to high-quality healthcare, and enhancing conventional means of delivering healthcare by tackling these issues and putting effective solutions in place.

6. Conclusion

By making medical treatments more accessible and affordable, telemedicine has the potential to drastically change the Indian healthcare system. While there are many benefits to telemedicine, there are also disadvantages in terms of medico-legal concerns. Legislators, medical professionals, and law enforcement agencies need to collaborate to establish clear guidelines and standards for telemedicine to address these concerns.

It is essential to incorporate telemedicine into medical curricula, training programs, and standardized criteria to guarantee safe and dependable telemedicine services. Reviewing health insurance regulations to incorporate telemedicine payment and resolving privacy concerns with secure data transmission methods are crucial for broader adoption. India may completely benefit from telemedicine by resolving these issues, which would improve

medical outcomes and foster social cohesion.

The boom that telemedicine was supposed to bring about has not been materialized despite its enormous promise. Technology innovation is being impeded by a lack of understanding and acceptability among the general public and experts. Public health telemedicine is gradually being more widely used as a result of governments becoming more interested in developing telemedicine procedures. Ideally, telemedicine procedures will realize their full potential in a few years.